WHAT IS CLAIMED IS:

1. A transmission electron microscope equipped with energy filter comprising:

an objective lens system consisting of at least one lens excited with excitation current;

a first intermediate lens system consisting of at least one lens excited with excitation current;

a second intermediate lens system consisting of at least one lens excited with excitation current;

a third intermediate lens system consisting of at least one lens excited with excitation current;

a fourth intermediate lens system consisting of at least one lens excited with excitation current;

a projector lens system consisting of at least one lens excited with excitation current; and

means for adjusting the excitation currents supplied to the lenses, thus preventing rotation of a created image.

2. The transmission electron microscope equipped with energy filter of claim 1, wherein if the mode of operation of the microscope is varied from the imaging mode to the diffraction mode or vice versa, if magnification is modified in the imaging mode, or if camera length is changed in the diffraction mode, the total sum of products of the numbers of turns of wire on coils of the lenses of said objective lens system, first intermediate lens system, second intermediate lens system, third intermediate lens system, fourth intermediate lens system, and projector lens system and their respective excitation currents is kept constant.

3. The transmission electron microscope equipped with energy filter of claim 2, wherein each value of the products of the numbers of turns of wire on the coils of the objective lens system and their respective excitation currents is multiplied by a coefficient *k*.

4. The transmission electron microscope equipped with energy filter of claim 2 or 3, wherein there is further provided a look-up table in which the excitation currents supplied to the lenses of the various lens systems are stored for plural modes of operation, various values of magnification, and various values of camera length.

5. A transmission electron microscope equipped with energy filter comprising:

an objective lens system consisting of at least one lens excited with excitation current;

a first intermediate lens system consisting of at least one lens excited with excitation current;

a second intermediate lens system consisting of at least one lens excited with excitation current;

a third intermediate lens system consisting of at least one lens excited with excitation current;

a fourth intermediate lens system consisting of at least one lens excited with excitation current;

a projector lens system consisting of at least one lens excited with excitation current; and

means for adjusting the excitation currents supplied to the lenses;

wherein, (1) when the number of real images formed by said lenses is even, the total sum of the products of the numbers of coil turns of the lenses of the objective lens system, the first intermediate lens system, the second intermediate lens system, the third intermediate lens system, the fourth intermediate lens system, and the projector lens system and their respective excitation currents are kept constant, and (2) when the number of real images formed is odd, the total sum is kept constant and, furthermore, the image is rotated through 180°, if the mode of operation is switched from an imaging mode to a diffraction mode or vice versa, if the magnification is varied in the imaging mode, or if the camera length is varied in the diffraction mode.

6. A transmission electron microscope equipped with energy filter as set forth in claim 5, wherein the values of the products of the numbers of coil turns of

the lenses of said objective lens system and their respective excitation currents are multiplied by a coefficient k.

7. A transmission electron microscope equipped with energy filter as set forth in claim 5 or 6, wherein there is provided a look-up table in which relations of plural values of magnification in the imaging mode to excitation current values of the lenses of the various lens systems for achieving these values of magnification are stored, and wherein there is provided another look-up table in which relations of plural values of camera length in the diffraction mode to excitation current values of the lenses of the various lens system for achieving these values of camera length are stored.